

A photograph of the Tomakomai CCS Demonstration Project industrial facility. The image shows a complex of large, silver-colored metal structures, including tall distillation columns and a network of pipes and walkways. The facility is set against a clear blue sky. The text is overlaid on the upper left portion of the image.

Tomakomai CCS Demonstration Project

~ focus on public acceptance ~

Takashi Kawabata
Japan CCS Co., Ltd.

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Outline of Presentation

1. Overview of Tomakomai CCS Demonstration Project
2. Site Selection
3. Public Outreach Activities
4. Summary & Lessons Learned

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1. Overview of Tomakomai CCS Demonstration Project

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Project Overview

Main objectives and tasks

- Demonstrate a full-chain CCS system from capture to storage
- Demonstrate that the CCS system is safe and reliable
- Remove concerns about earthquakes by the data collected;
 - No influence by natural earthquakes on CO₂ stored
 - No perceptible earth tremors induced by CO₂ injection
- Disclose project information and data and enhance understanding of CCS by local residents

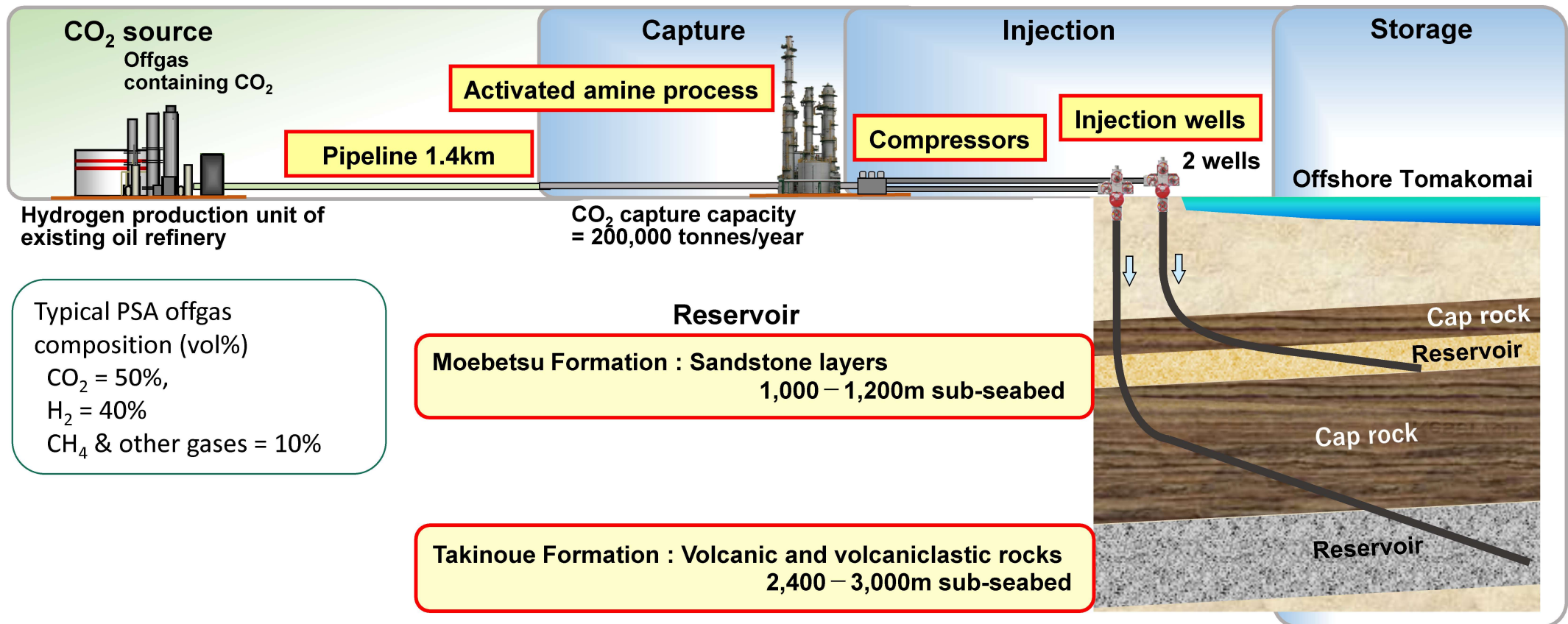


Tomakomai CCS Demonstration Center, Tomakomai City, Hokkaido



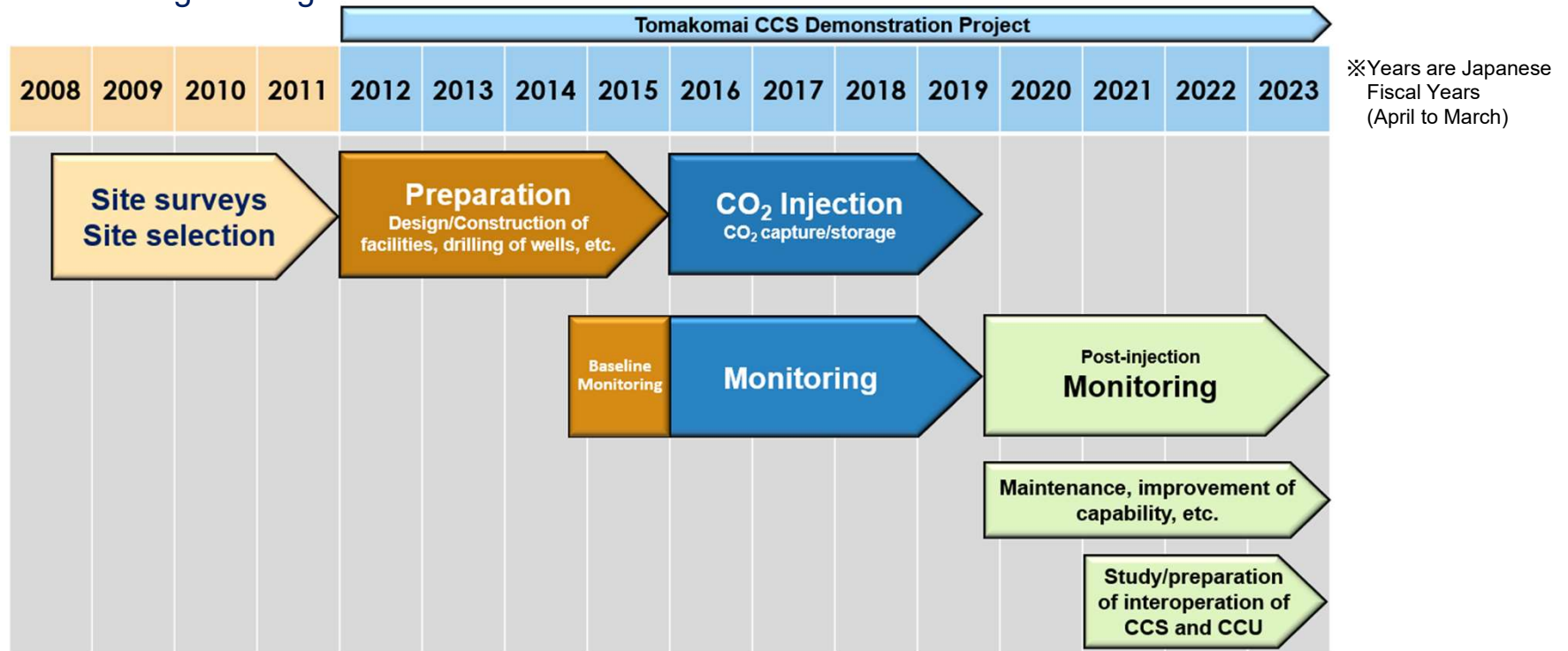
Project Scheme

- A portion of PSA (Pressure Swing Adsorption) offgas containing approximately 50% CO₂ generated by a hydrogen production unit in adjacent refinery is transported by 1.4km pipeline to Tomakomai Project capture facilities.



Project Schedule

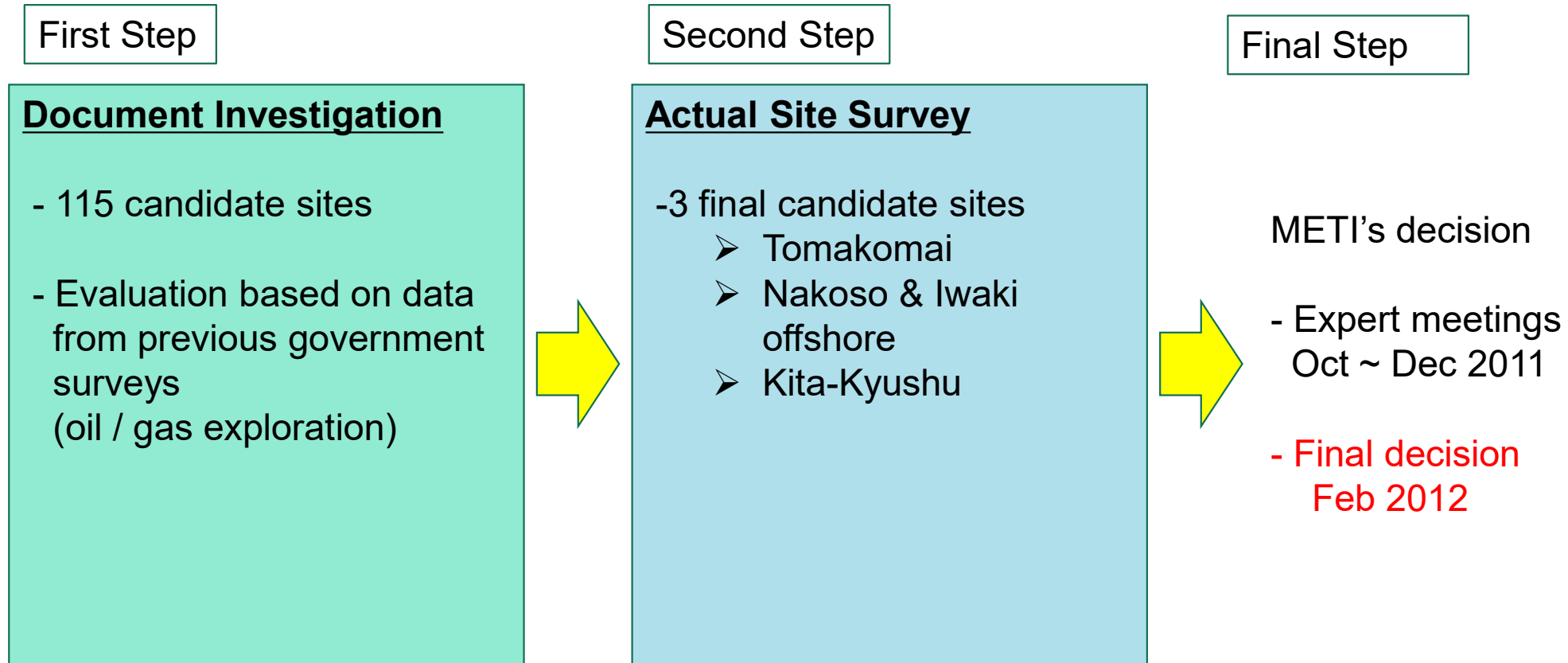
- Constructed demonstration facilities **from FY2012 to 2015**
- Started injection **at scale of 100 thousand tonnes** per annum **from April 2016**
- Achieved initial target of **300 thousand tonnes cumulative injection on November 22, 2019**
- Monitoring is being continued



2. Site Selection

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Site Selection Scheme



Key points of Site Selection

Some reasons...

- Abundance of subsurface data
- CO₂ Source (Oil Refinery)
- **Strong Support from local government (Tomakomai City)**
 - City established “Tomakomai CCS Promotion Association” in 2010
(Currently “Tomakomai CCUS & Zero Carbon Implementation Association”)
 - Association members : Key local stakeholders
~ Chamber of Commerce, Fishery Cooperatives, etc.

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Engagement with local government and local industries

Tomakomai CCS Promotion Association Launched in 2010

- During the site selection process, formed to attract the CCS demonstration project to Tomakomai City
- Chaired by Mayor of Tomakomai City, comprised all the major local industries including the fishery cooperatives.
- Important communication channel for central government and JCCS to keep the local industries informed.
- The association's activities and newsletters are available to the general public on the Tomakomai City official website.
- The cooperation of the association was instrumental in providing for the smooth communication of information.

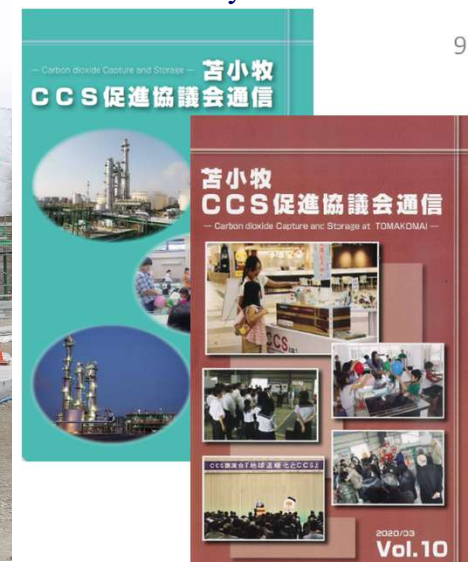
Annual general assembly (JCCS explains the project status)



Site tours for local industries (fishery cooperatives)



Association Newsletters:
available on city website



3. Public Outreach Activities

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Tomakomai CCS Demonstration Project-CO₂ injection near urban area

- Operations of Tomakomai project are executed near urban area. ⇒ Extensive public outreach activities being conducted.



Public Outreach Activities

Voice of Tomakomai Citizens

1. Information Disclosure

Thorough disclosure should be made

2. Safety/CO₂ leakage

Want more detailed information on risk of CO₂ leakage

Monitoring & Disclosure Plan

3. Dissemination to Young Generation

Should consider efforts to involve young generation

Outreach Activities

- ① Panel Exhibitions
- ② Forum for Tomakomai Citizens
- ③ Site Tours
- ④ Information Disclosure System

- ⑤ Mini seminars for students
- ⑥ Kids' lab classes/site tours

Outreach Activities (JFY2019)

Site Visitors: 2168 people
(401 from overseas)

Mini seminars: 27 times

Panel Exhibitions: 8 times

Kids' lab classes: 3 times

Booth in Environmental
exhibitions: 11 times

CCS Forum: 600 people

Outreach Activities:



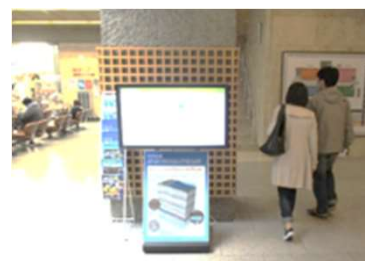
Panel Exhibition in Tomakomai



Kids' lab class



Site Tours



Information disclosure system
in Tomakomai City Hall

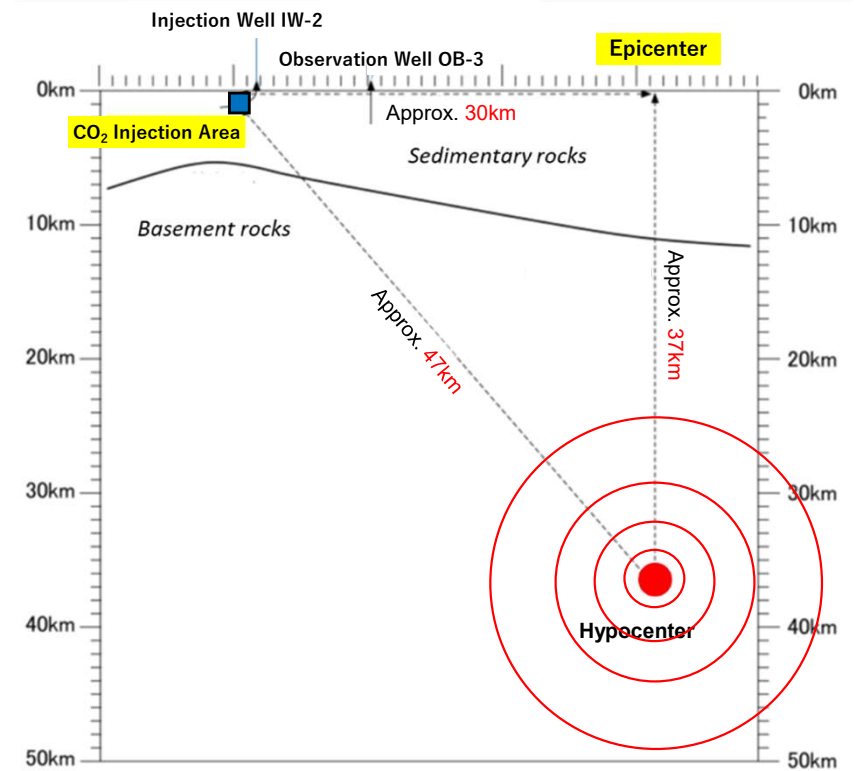
*Project being conducted
with understanding and
support of local community*

2018 Hokkaido Eastern Iburi Earthquake

- At 3:07am Sept. 6, 2018, a moment magnitude 6.6 earthquake at 37km depth occurred in central eastern part of Iburi region of Hokkaido. Tomakomai CCS demonstration site recorded seismic intensity of lower 5.



Plan view



Cross section view

Measures taken by JCCS after the Hokkaido Eastern Iburi Earthquake

- 6th Sept. 2018: Moment Magnitude 6.6 earthquake occurred
- 12th Sept 2018: Posted JCCS's views on JCCS on HP
- 19th Oct. 2018: Convened an expert review meeting
- 21st Nov. 2018: Posted summary of review meeting on HP

Key points on JCCS HP:

1. No relationship between CO₂ injection and earthquake
2. No CO₂ leakage

※ Report on Expert Review Meeting:

(https://www.japanccs.com/wp/wp-content/uploads/2019/09/Research-Report-on-Impacts-of-Hokkaido-Eastern-Iburi-Earthquake-on-CO2-Reservoir_2nd-edition.pdf)

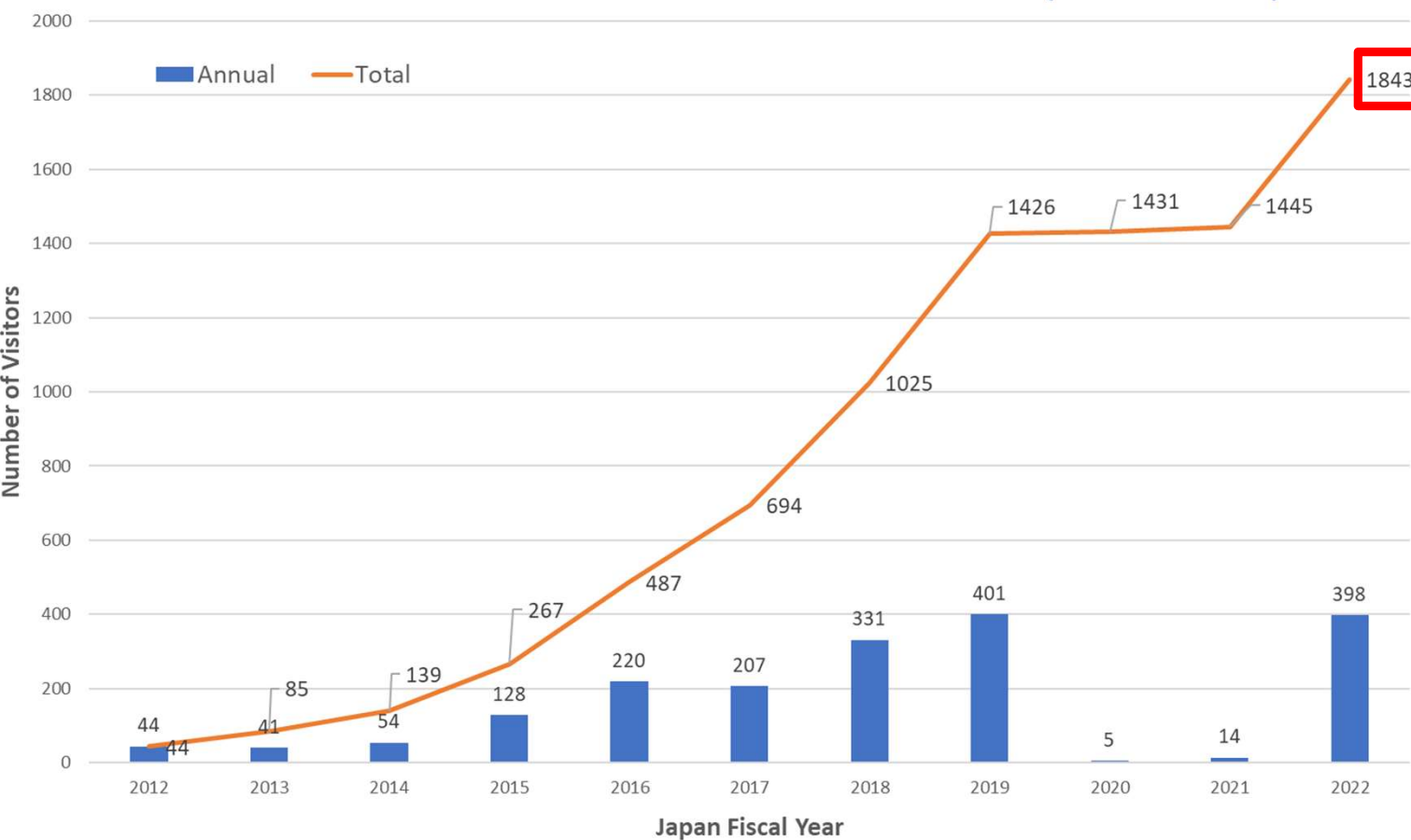
Key principles to minimize concerns of local community and general public:

- *Respond quickly*
- *Include technical explanation*

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Increasing Number of International Visitors from Overseas.

International Visitors to the Tomakomai CCS Demonstration Center (JFY2012-JFY2022)



Number of Visitors FY2022

258 groups, 2075 people
(Domestic + Overseas)

4. Summary & Lessons Learned

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Summary & Lessons Learned

- Cooperate with Local Government
 - Local government is the first contact for region

- Continuous communication with local stakeholders
 - Establish relationships (develop trust)
 - Strive to know what is their concern / interest

- Disclose information : honestly, promptly, transparently